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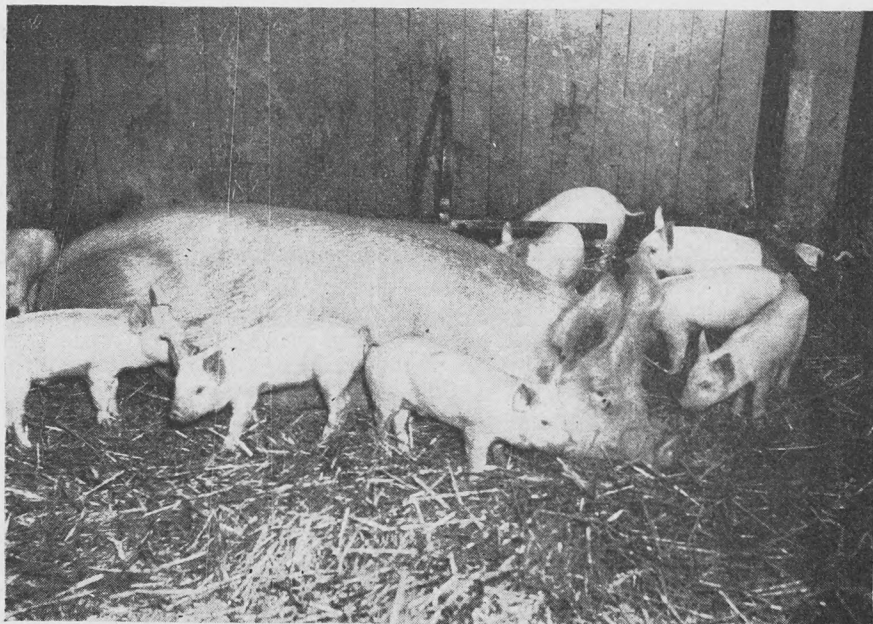
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KEEPING PIGS HEALTHY

(Western Canada Edition)



PRODUCTION SERVICE
LIVE STOCK AND POULTRY DIVISION

Published by authority of the Hon. JAMES G. GARDINER, Minister of Agriculture,
Ottawa, Canada

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FOREWORD

Keeping pigs healthy is chiefly a matter of good feeding, cleanliness and protection from extremes of weather. The principles and practices outlined in this pamphlet are those recommended by a group of swine nutritionists and pathologists. The recommendations are based upon scientific information of proved practical value. Detailed information on feeding is available from a number of other sources, hence no attempt has been made to state exact feed mixtures, nor is any attempt made to give the symptoms of disease, as treatment for infectious and contagious diseases depends upon a correct diagnosis which is a job for the veterinarian. It will pay to follow management and feeding practices which keep pigs healthy as *the healthy pig is the profitable pig*.

KEEPING PIGS HEALTHY

Introduction

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General

To feed pigs properly, they must be given both the right quantity and right quality of feed. Farm grains are lacking both in quantity and quality of proteins, in minerals and in vitamins, and so, do not satisfy the needs of the pregnant or nursing sow or of growing pigs. To farm grains must, therefore, be added feeds which are rich in protein, minerals and vitamins. Without these additional materials, growth may be slow and pigs may be weakened to such an extent that they cannot resist disease.

Protein Rich Feeds.—Proteins are that part of the feed which is used for growth and maintenance of muscles and vital organs. Skim-milk and butter-milk are excellent protein rich feeds if fed in sufficient quantity. If sufficient milk is available (*see* Schedule of Feeding, page 13), there is no need to add any other protein supplement though additional minerals and vitamins may be required under certain conditions. Other feeds which are rich in protein, such as tankage, meat scrap, fishmeal, linseed oilmeal and soybean oilmeal are best used as mixtures and most of these can now be obtained only as mixed protein supplements. A protein supplement for pigs should include some protein feed of animal origin. The proportion needed is not known exactly but 25 per cent in the supplemental mixture has been satisfactory. Due to the shortage of commercial protein feeds the use of mixed protein mineral supplements is advisable. Where the use of a supplement is recommended in this pamphlet, the standard 30-35 per cent protein mineral supplement for pigs, required by Order A636 of the Feeds Administrator, is the one referred to.

Minerals.—More minerals are needed by pigs of all ages than are usually found in farm grains. All pigs need salt, pregnant sows should be given iodine and suckling pigs need iron. If rations are restricted and no milk or protein

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The recommendations on feed mixtures in this bulletin of the Feeds Administrator which limited Protein Mineral This and later orders have been withdrawn and supplements can now be obtained. If a supplement of more than 35% mixed with grain may be reduced proportionately for each

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Introduction

The pig is the fastest growing animal on the farm, its gestation period the shortest and the number born in one litter the largest. Although the weight of the individual pig is small, the weight of the litter is large. Competition for food starts before the pig is born and continues during nursing and can be seen at the trough. The small pig is subjected to some unusual hazards. It is in danger of crushing and injury from its dam which is at least one hundred times its size. It has little hair to protect it from cold, rain and sun and it feeds and lives close to the ground where it is easiest to pick up disease germs and parasite eggs. Despite these hazards, the pig is outstanding in its ability to convert grain into meat quickly and the losses from these hazards can be greatly reduced by good swine husbandry which means good feeding, good management and sanitation.

In this pamphlet, the terms "winter" and "summer" are used broadly. Winter includes all the months in which the weather even for short periods is unfavourable; summer those months when pasture is available and weather conditions are good.

WINTER

General

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mineral supplement is fed extra calcium (lime) is also required. In some districts other minerals are required in addition to those mentioned, and should be fed as advised by local authorities or as shown by experience.

Calcium and Phosphorus.—Farm grains are high in phosphorus and usually low in calcium (lime), both of which are necessary together with vitamin D for normal bone formation. If neither milk nor protein mineral supplement is used, additional calcium in the form of high-calcium limestone should be added to the grain mixture at the rate of $\frac{1}{2}$ to 1 pound of ground limestone to 100 pounds of grain. There is some evidence that without sufficient calcium during pregnancy, the sow may give little or no milk. (Hydrated lime or quicklime should not be used for feeding as they are caustic.)

Salt.—Common salt is an essential ingredient of the animal body and should be included in the feed mixture at the rate of $\frac{1}{2}$ pound per 100 pounds of feed except when a commercial protein mineral supplement is used. These supplements usually contain sufficient salt to meet the needs of the pig for this mineral. Feeding salt at irregular intervals is unwise and may cause digestive disorders.

Iodine.—In most of the heavy hog-producing areas in Canada, the feed grown lacks iodine which is an essential mineral for the pregnant sow if the pigs are to be strong and normal at birth. The lack of iodine may result in weak pigs. In extreme cases it may result in hairless pigs which are stillborn or which die shortly after birth. The only way to prevent such losses is by feeding iodine to the pregnant sow. Either of the following methods continued throughout pregnancy, will meet the sow's need for this mineral:

Dissolve 1 oz. of potassium iodide or sodium iodide in 1 imperial gallon of water. Give 1 tablespoonful to each sow in her feed each day.

or

Dissolve 7 oz. potassium iodide or sodium iodide in 1 imperial gallon of water. Give 1 tablespoonful to each sow in her feed once per week.

Vitamins.—The vitamin requirements of pigs are not known exactly but it is known that vitamin D is required together with sufficient calcium and phosphorus for the formation of normal bone, and that a lack of it may result in crippled pigs (rickets). A lack of vitamin A may result in blind weak pigs and a lack of resistance to infection. A shortage of this vitamin may affect the amount of milk given by the sow. To assure sufficient vitamins, sows and pigs over 100 pounds should be fed fine green leafy alfalfa or clover hay. If the alfalfa or clover hay is not green and leafy it has no virtue as a source of vitamins for pigs. As the vitamin content of hay varies, it is advisable to feed a vitamin, or as it is now called, a feeding oil, at the rates recommended, in addition. (See footnote, page 5.) Pigs under 100 pounds should be given a feeding oil rather than hay, which is high in fibre and therefore, unsuitable for small pigs.

Water.—All pigs require water. It should be clean and particular care should be taken that the pigs get all the water they want. During cold weather, warming the water will induce drinking and the use of warm water to mix with the feed reduces the danger of digestive disorders.

The Pregnant Sow

The proper care and feeding of the pregnant sow is very important in the production of healthy pigs. Any deficiency in the diet of the sow will be reflected in the pigs, and without sufficient feed of the right kind, the sow is

unable to build up a reserve upon which to draw during nursing. Without this reserve or if some materials are lacking or in short supply, the milk supply may be reduced or the lactation period shortened.

The pregnant sow should be fed:

- (1) A mixture of farm grains with at least $1\frac{1}{2}$ pounds of skim-milk per pound of grain; or
- (2) A mixture of farm grains to which is added 10 pounds of a protein mineral supplement to 90 pounds of grain.

It is recommended that good quality, which means green and leafy, alfalfa or clover hay be supplied in racks to sows. If a feeding oil is used, it should be fed at the rate of:

1 teaspoonful per sow daily of a vitamin feeding oil* of 200 D 1,500 A or 200 D 1,000 A units.

Feeding.—The amount of feed to give a pregnant sow will depend on her condition, age, and size. If fed a properly balanced feed mixture and getting exercise each day, she may be brought into good condition. Unless quite fat when bred, a sow should gain in weight and condition during pregnancy. Any reserve built up at this time will be used when nursing the pigs.

Care before Farrowing.—The gestation period for a sow is about 114 days and the sow should be placed in her farrowing pen a few days before farrowing. At this time:

1. The amount of feed given should be reduced.
 2. Bran, linseed oilmeal or ground flaxseed should be added to the feed mixture to prevent constipation.
- (See page 9 for suggestions *re* the farrowing pen.)

The Nursing Sow

The growth of the suckling pigs depends a great deal upon the treatment and feeding of the nursing sow. During the first week after farrowing, feeding the sow too much may be harmful to the litter.

- (1) The sow should be reduced to half rations for two days after farrowing but should be encouraged to drink plenty of skim-milk or water; warming these will help.
- (2) Feeding should be started with a thin slop gradually increasing the proportion of the grain mixture so that the sow will be on full feed in about 10 days after farrowing.
- (3) Feed for the sow should consist of mixed grain to which is added two or three pounds of skim-milk per pound of grain, or if no milk is available, the mixture should consist of:

Ground Grain	85 lb.
30-35 per cent Protein Mineral Supplement..	15 lb.

It is important that sows be supplied with green forage or fed a feeding oil during the entire nursing period.

*Under Order A 388 of the Oils and Fats Administrator processing of feeding (vitamin) oils is limited to four types of standard vitamin potency. These contain the following units of vitamin per gram:

- (a) 200 units D 1,000 A
- (b) 200 units D 1,500 A
- (c) 400 units D 1,850 A
- (d) 400 units D 3,000 A

Fed to pigs at the rates recommended either type *a* or *b* oil will supply sufficient vitamin A. If type *c* or *d* is used, one-half the quantity recommended is sufficient.

The Suckling Pig

Iron.—Milk contains little iron. To assure healthy pigs this mineral must be supplied in some other way. The following methods are recommended:

- (1) Give each litter a clean sod, that is one from ground not used by pigs, in a separate enclosure (creep) each day. Sods may be fortified with iron by sprinkling with three or four tablespoonfuls of the following solution:

6 oz. of Ferrous Sulphate (Copperas) dissolved in 1 gallon of soft water;

or

- (2) Paint or swab the sow's udder and teats once a day with the following solution:

6 oz. Ferrous Sulphate (Copperas) dissolved in 1 qt. of soft water.

Important.—Feeding of iron should be started a day or two after birth and continued until the pigs are eating solid feed freely. Iron is an essential mineral and should be fed as a matter of routine with all litters farrowed and kept inside. Feeding of iron should not be delayed until the lack of it causes pale, shivery (anaemic) pigs. These may be permanently stunted; many are lost.

Another method of feeding iron to young pigs which is commonly used is to place a *small quantity* of reduced iron on the tongue of each little pig.

In using this method two precautions are necessary:

- (1) The correct quantity should be fed.
- (2) The iron should be placed under the tongue or spread on the surface of the tongue to reduce the possibility of the powder being inhaled into the lungs.

Three grains of reduced iron per dose is all that is required. To be sure that this amount is not seriously exceeded, it is suggested that a sample dose be obtained from a druggist and kept on hand to check the quantity given from time to time.

The first feed of reduced iron should be given when pigs are two or three days of age, and a similar amount given every seventh day until the pigs are eating solid feed freely. Four doses are usually sufficient.

Supplementary Feeding.—Pigs cannot thrive for very long on milk alone. To encourage suckling pigs to eat solid feed, a feed mixture which is low in hull should be placed in a small trough in a separate enclosure where the pigs can get it without being disturbed by the sow. A satisfactory enclosure or creep can be made by boarding off one corner of the pen almost to the floor. Creep feeding simplifies weaning and helps to keep the sow in better condition.

Castration of Males.—Male pigs should be castrated as early as possible and at least two weeks before weaning. Cleanliness is essential. Before starting the operation, the pen should be thoroughly cleaned and bedded with clean fresh straw. The area around the cut should be washed with a disinfectant; the knife and hands of the operator dipped in disinfectant before each cut and the wound disinfected after the testicles are removed. The cut should be made so that no pocket is left for the accumulation of pus when the pig is standing up.

Weaning and Weanlings to 60 lb.

Although creep feeding simplifies weaning, it cannot overcome entirely the drastic change in feed and feeding methods which the pigs must undergo when weaned. Pigs should be weaned at from six to eight weeks. The following help to simplify weaning:

- (1) Skim-milk and buttermilk are particularly valuable for weaned pigs. However, abrupt changes from one to the other or from sweet skim-milk to sour skim-milk or vice versa should be avoided.
- (2) If neither skim-milk nor buttermilk is available, the feed mixture should be supplemented with a protein mineral mixture.
- (3) A standard feeding oil should be fed in the winter months at the rate of 1 teaspoonful per pig per day of oil of 200 D 1500 A or 200 D 1000 A potency. (See note, page 5.)
- (4) Warm water is preferable in cold weather.
- (5) *The feed mixture should be low in hull or fibre.* Hull-less oats are especially valuable for weanlings. If common oats are used they should be ground and sifted. Fine grinding does not decrease the amount of hull nor make it less harmful. Hull has no food value and may upset the digestion of young pigs.
- (6) The amount of feed given should be gauged to the pigs' appetites. Sufficient should be given so that smaller as well as larger pigs in the litter are satisfied. There should be none left in the trough when the next meal is given.
- (7) Newly weaned pigs should be fed at least three times a day.
- (8) Any changes in feed mixtures or feeding practices should be made gradually.

Pigs 60-110 Pounds

Pigs from 60 to 110 pounds need skim-milk or buttermilk or its equivalent in a protein mineral supplement. Feeds high in fibre, such as oats, should not form more than one-third of the grain mixture. A standard feeding oil should be fed at the rate recommended for weanling pigs.

110 Pounds to Market Weight

If pigs have received feed mixtures balanced as to proteins and minerals and are in a healthy thriving condition, there should be little difficulty in carrying them to marketing weight. The proportion of protein mineral supplement or of milk may be reduced or, if necessary, omitted. If the supplement is omitted, salt should be provided at the rate of $\frac{1}{2}$ pound per 100 pounds of grain mixture and calcium in the form of ground limestone at the rate of $\frac{1}{2}$ pound per 100 pounds of feed. Pigs of this weight may be fed green leafy alfalfa or clover hay to supply some protein and vitamins.

Dry Sows

The aim in feeding dry sows is to maintain them and prepare them for the job ahead. As a general rule they should be kept outside and provided with reasonably good shelter. Sows which are thin should be fed sufficiently to improve their condition. During this period, good quality alfalfa or clover hay should be supplied freely. Exercise is essential. As the breeding season approaches, additional minerals and proteins should be supplied.

Boars

Excessive use, poor feeding, and lack of exercise, are reflected in the breeding performance of the boar. Management and feeding of the boar should be similar to that recommended for dry sows.

Sanitation

Cleanliness is one of the most important factors in protecting the health of pigs. Pigs live and feed in close contact with the ground and each other. They suckle from the udder of the sow that is often in contact with the floor or ground where parasite eggs and disease germs abound. Cement floors, a manure alley at the back of the pens and proper arrangements for cleaning are all helpful in reducing loss from disease and parasites. Farrowing pens should be cleaned thoroughly, and, if disease and parasites have been the cause of loss in the herd previously, special sanitary precautions should be taken before farrowing. These consist of the following:

- (1) Clean the pen thoroughly, removing all manure and bedding.
- (2) Soak the walls, partitions, floor and troughs with warm water to which is added one tablespoonful of lye to each pailful of water.
- (3) Scrape and scrub all parts of the pen thoroughly until it is absolutely clean.
- (4) *Scald all parts of the pen with boiling water.*

This is the only treatment which will destroy parasite eggs. To destroy disease germs a suitable coal tar disinfectant should be added to the boiling water.

- (5) Thereafter, the pen should be cleaned out thoroughly each day.

In addition to the above, the legs and belly of the sow should be thoroughly washed with warm water and soap immediately before she is placed in the clean farrowing pen.

Management

Housing.—Avoid overcrowding.

During winter months, pigs need protection from cold and dampness. The smaller the pig, the greater the need for this protection. The piggery should be:

- (1) Reasonably warm, a temperature of about 50° is sufficient for small pigs.
- (2) Dry.
- (3) Well aired but free from draughts.

Insulation.—Insulation of walls and ceiling is very helpful in keeping buildings warm and promoting good ventilation. Buildings may be insulated by filling the space between double walls with dry planer shavings. These can be kept dry by a layer of tar paper both inside and out and protected from rodents by mixing 2 per cent of hydrated lime with the shavings. Straw is a good temporary insulating material if used in a thick layer.

Warmth.—The heat given off by pigs is not sufficient in cold weather to warm the large space in a piggery caused by the need of high ceilings for the attendant. The warmth of the piggery can be increased by:

- (1) Preventing heat loss by tight construction and insulation.
- (2) The use of a small stove or other artificial heater.

- (3) By permitting entry of sunshine. This can be done by placing large windows on the south side of the building. Doors and other large openings on north and west sides should be avoided.

Dryness.—The dryness of the piggery will depend on its cleanliness and ventilation. Good pen arrangement and concrete floors are aids to cleanliness. Dampness can be reduced by frequent changes of air. The difficulty is to do this without making the building too cold for the younger pigs. Insulation helps to prevent loss of heat and condensation of moisture and thus helps in keeping the building ventilated.

Ventilation.—Controlled ventilation by which sufficient air can be supplied without draughts and without lowering the temperature too much is a necessity in a piggery. The tighter the building, the greater the need for ventilation. A system based on a number of small inlets for fresh air with one large outlet shaft has proved satisfactory under many conditions.

Preparation of Feed

All farm grains, with the exception of corn, should be ground for pigs; fine grinding is neither necessary nor desirable, and wheat in particular should not be finely ground. It is customary to mix the protein mineral supplement with the grain. If this practice is followed the mixing should be done thoroughly. For suckling or weanling pigs, the hull should be sifted from oats or any other grain which is high in fibre.

Protection from Injury

To protect pigs from injury and crushing:

1. The pregnant sow should be handled quietly and gently.
2. She should not be driven through narrow openings or forced to climb over obstructions.
3. She should be protected from slipping and falling.
4. Cracks and holes in farrowing pens, walls and floors should be plugged or covered.
5. Each pen should be equipped with strong guard rails.
6. The pen should be bedded sparingly with short straw or chaff.
7. Heat in the piggery or heated pig brooders are very useful in keeping the small pigs away from the sow (*see* Wartime Production Pamphlet No. 11).
8. The construction of a low-ceilinged triangular hover in one corner of the farrowing pen is reported to be helpful in keeping pigs warm and away from the sow, except when suckling.

Exercise

Moderate daily exercise helps to keep animals in good condition. It is needed more by mature breeding stock than by young active pigs. Boars and sows without litters can usually be kept outside if dry and reasonably well-sheltered sleeping quarters are provided.

SUMMER

Feeding and Care

Summer feeding of pigs is similar to winter feeding, except that pigs on pasture or receiving green feed and exposed to sunshine, do not require additional vitamins.

If pigs are on good pasture, the proportion of protein supplement or milk except for very young pigs, can be somewhat reduced. Feeding of minerals including calcium, salt and iodine, should be continued as in winter.

Pasture

Pasture should be used to supplement grains, rather than replace them. As a general rule, mature breeding pigs will use pasture to the best advantage. For younger pigs, the value of pasture will depend on:

1. Its cleanliness, that is, freedom from parasite eggs and disease germs.
2. The quality and quantity of the pasture.

A fresh pasture lot not grazed by other hogs for at least a year previously should be used for young pigs to reduce the danger of disease and parasites.

Alfalfa, clover, oats, rye, and rape are the most satisfactory pasture crops for pigs of all ages, and should be grazed, if possible, close enough to keep the growth short without destroying the plants.

Limitations.—Though pasturing may save some feed and labour, these savings can be offset by high losses, unless both pigs and pastures are managed properly. For breeding stock pasturing is entirely satisfactory if shade and water are provided, and feeding is done by hand so that the condition of the stock can be controlled. Sunburn can cause a serious setback in young pigs. Permanent pasture lots become sources of parasites and disease unless rotation is practised.

Feeding

Feeding should be the same in summer and winter for each stage of growth except as follows:

Pregnant Sows.—Pregnant sows which are on pasture do not need a vitamin supplement, but should be supplied with some additional protein and the usual minerals including salt and iodine. The amount of feed should be limited to induce grazing. When sows are transferred to inside farrowing quarters, green feed should be supplied and special care taken to prevent constipation.

Suckling Pigs.—Suckling pigs do not need iron *if outside* but if they are kept inside, the recommended precautions should be taken to prevent anaemia (*see page 6*).

Whether inside or outside, creep feeding should be practised. Castration of male pigs should be done when the pigs are not overheated and it is cool. After the operation, they should be kept in the shade on fresh bedding, or fresh pasture. Disinfectant should be used freely to prevent infection.

Weaning and Weanlings.—Feeding and management of weaned pigs should be similar to methods recommended on page 7, except that pigs on pasture or receiving green feed and exposed to sunshine, do not need a vitamin supplement. The proportion of protein mineral supplement or milk may be somewhat reduced if pigs are on good pasture. Small paddocks which permit grouping according to age and size are recommended for pigs on pasture.

Sows and Boars.—Dry sows and boars should be kept on pasture during the summer months and should be fed by hand so that the amount of feed can be controlled. The amount given to dry sows will depend on how soon they are to be bred as it is desirable that they be in rising condition at the time of service. If breeding is delayed, sows should be prevented from becoming overfat.

Sanitation

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The Sick Pig

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Rations for Growing Pigs

Weaning to 60 pounds.—Three pounds skim-milk or buttermilk per pound of mixed grain

or

Twenty pounds mixed protein mineral supplement and eighty pounds mixed grain.

60-110 pounds.

—Two pounds skim-milk or buttermilk per pound of mixed grain

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Twelve pounds protein mineral supplement and 88 pounds mixed grain.

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Sanitation

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In addition to the sanitary precautions recommended on page 8, the following precautions should be followed:

- (a) Yards or pastures should be ploughed each year;
- (b) Separate and the new pastures should be used for the younger pigs.

Management

Summer management is similar to winter management, except when pigs are pastured. Shady spots are a requirement in a pig pasture and a plentiful supply of clean water is a necessity.

General Precautions

Animals brought to the farm from other herds should always be isolated for at least three weeks before being placed with other pigs.

Runts may be carriers of infection and parasites; they seldom pay for their keep; and in general, their destruction is advisable.

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Twelve pounds protein mineral supplement and 88 pounds mixed grain.

110 pounds and over. —One to one and a half pounds skim-milk or buttermilk per pound of mixed grain

or

Five pounds protein mineral supplement and ninety-five pounds mixed grain.

NOTE.—The above recommendations are in line with Order A636 of the Feeds Administrator.